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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,328	11/02/2001	Darrin M. Patek	006979-0010	9602
33356	7590	03/16/2005	EXAMINER	
SOCAL IP LAW GROUP 310 N. WESTLAKE BLVD. STE 120 WESTLAKE VILLAGE, CA 91362			BLENMAN, AVALON	
			ART UNIT	PAPER NUMBER

2153

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/033,328	Applicant(s) PATEK ET AL.	
	Examiner Avalon Blenman	Art Unit 2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 02 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on November 2nd, 2001 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: #132-3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

It is believed by examiner that applicant intended fig 2., #132-2 of output queue #176 to read #132-3 as referenced to on page 5, paragraph 21, lines 5-6.

Specification

The abstract of the disclosure is objected to because the phrase "The selected output ports are copied to concurrently" is unclear. Correction is required.

The disclosure is objected to because of the following informalities: It is suggested applicant update incorporation by reference to Application Serial No. 09/971049 (page 5, paragraph 20, line 23; page 7, paragraph 25, line 10). Appropriate correction is required.

Claim Objections

Claim 9 is objected to because of the following informalities: The word "out put" is misspelled. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter ("user defined control information", line 2) which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at

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the time the application was filed, had possession of the claimed invention. The claim will be treated as best understood by examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7, 8-13, 14-21, 22, 24, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Sindhu et al. (US Patent 6,493,347), hereafter referred to as Sindhu.

Regarding claim 1, Sindhu discloses a method (fig. 18) for sending a data item (packet) from a source (fig. 2B, #150, input mutiport) to selected destinations of a plurality of destinations (fig. 2B, #150-n, output multiports) in a switching network, said method comprising:

- examining said data item (packet key) to determine a routing identifier (key destination information) for said data item (col. 6, lines 12-17);

- using said routing identifier (key destination information) as an index, accessing a data structure comprising routing control values (results) for said plurality of destinations (col. 6, lines 18-21); and
- concurrently transferring said data item from said source (input mutiport) to said selected destinations (output multiports) based on said routing control values (results) (col. 6, lines 21-29)

Regarding claims 2-7, Sindhu further discloses a method wherein:

- said data structure comprises a table (routing table, col. 5, lines 61-62)
- said table (routing table) comprises predetermined routing information (col. 3, lines 30-34, col. 6, liens 18-21)
- said data item (packet) comprises a portion of a frame (col. 6, lines 58-60)
[It is established that the packet can be divided into portions (cells)]
- said source (input multiport) comprises an input queue (fig. 3A, #312, buffer, col. 6, lines 31-40)
- said routing control values (results) is part of a mask (col. 17, lines 5-10, fig. 14, #1402)

[It is inherent that the routing table contains mask information since this is what is included in retrieved notification results, fig. 14, #1402]

- said switching network is part of a router (fig. 2B)

Regarding claim 8, Sindhu discloses a method (fig. 18) for multicasting a frame (packet cell) in a router (fig. 2B), said router comprising an input queue (fig. 2B #150, input multiport) and a plurality of output queues (fig. 2B #150-n, output multiport), said method comprising:

- determining a destination identifier (fig. 3C, #366, output ID port) for said frame (packet cell) received by said input queue (col. 6, lines 12-17);
- using said destination identifier (fig. 3C, #366, output ID port), locating a data structure comprising a mask (inherent , fig. 14, #1402) for said plurality of output queues (col. 6, lines 18-21, col. 17, lines 5-10); and
- concurrently transferring a reference (fig. 14, #1406, full address) to said frame (packet cell) to at least two selected output queue controllers (fig. 3A, #305, read request queue) in accordance with said mask (col. 6, lines 21-26, col. 17, lines 5-15, 23-24)

Regarding claims 9-13, Sindhu further discloses a multicasting system wherein:

- copying a word associated with said reference to said frame (read request) to selected output queues (output multiport) of said plurality of

output queues corresponding to said selected output queue controllers
(read request queue) (col. 6, lines 26-29, col. 12, lines 26-29)

- said data structure comprises a table (routing table), said table comprising said mask (inherent, col. 5, lines 61-62, col. 17, lines 5-10)
- said destination identifier (fig. 3C, #366, output port ID) is an index into said table for selecting said mask (col. 6, lines 18-21, col. 17, lines 5-10)
- said frame (packet cell) is stored in a shared memory (fig. 2B, #104) and is located by said reference to said frame (col. 6, lines 10-12, col. 17, lines 23-24)
- said reference to said frame includes a pointer (full address) to said frame (col. 17, lines 23-24, col. 13, lines 52-64)

Regarding claim 14, Sindhu discloses a multicasting system (fig. 2A) in a switching fabric for routing data in a frame (packet cell) received at an input queue (fig. 2B, #150, input multiport) to a plurality of selected output queues (fig. 2B, #150, output multiport), comprising:

- a table (routing table, col. 5, lines 61-62) having a plurality of predetermined routes (col. 3, lines 30-34), said table addressed by a destination ID (fig. 3C, #366, output port ID) in said frame (packet cell),

and said table (routing table) comprising a mask (inherent, fig. 14, # 1402) corresponding to said destination ID (col. 6, lines 18-21, col. 17, lines 5-15)

- a memory (fig. 2B, # 109, controller memory,) for storing said mask (inherent, fig. 14, # 1402), said mask indicating said plurality of selected output queues (col. 5, lines 61-62, col. 17, lines 11-15); and
- selected output queue control modules (fig. 3A, #305, read request queue) for said plurality of selected output queues (output multiport), said selected output queue control modules used for copying said data (read request) to said plurality of selected output queues (col. 12, lines 26-29)

Regarding claims **15-21**, Sindhu further discloses a multicasting system comprising/wherein:

- a start of frame pointer (full address) for addressing a memory area (memory bank) in a shared memory (fig. 2B, #104, controller memory) having said frame (packet cell), wherein said start of frame pointer is concurrently copied to said selected output queue modules (col. 6, lines 18-16, col. 17, lines 5-15, 23-24)

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- said frame (fig. 3C) has a frame format comprising: a type (# 356), a destination ID (# 366), and data (# 354)
- said frame (fig. 3C) has a type (# 356), a route (destination information), and *user defined control information* (other information) (col. 6, lines 12-17)
- said frame (fig. 3C) as a frame format comprising: a type (# 356), a route (key destination information), and data (# 354) (col. 6, lines 12-17)
- said route includes a multicast flow ID (col. 6, lines 12-17)
- said memory (controller memory) for storing said mask (inherent) includes a lockable row (SDRAM bank) (col. 16, lines 56-59)

Regarding claim **22**, Sindhu discloses a system (fig. 2A) for multicasting a frame (packet cell) in a router (fig. 2B) having a plurality of input ports (fig. 2B, #150, input multiport) and a plurality of output ports (fig. 2B, #150, output multiport), comprising:

- a first crossbar switch (fig. 2B, #100, input switch) for transferring said frame (packet cell) from an input port (fig. 2B, #150, input multiport) of said plurality of input ports to a shared memory (fig. 2B, #104) (col. 6, lines 10-12);

- a frame pointer (fig. 14, #1406, full address) for referencing said frame (packet cell) stored in said shared memory (col. 17, lines 23-24);
- a second crossbar switch (fig. 2B, 102, output switch) for transferring said frame (packet cell) using said frame pointer (full address) to a plurality of selected output ports (fig. 2B, #102, output multiport) of said plurality of output ports (col. 6, lines 12-26);
- and a control unit (fig. 2B, # 106, controller) for selecting said plurality of selected output ports using a multicast data structure having predetermined multicast routes (col. 3, lines 30-34, col. 6, lines 18-21)

Regarding claim **24**, Sindhu further discloses:

- said control unit (controller) comprises a lockable cache memory (SRAM) for storing a mask, said mask (inherent , fig. 14, #1402) used in selecting said plurality of selected output ports (col. 16, lines 56-59)

Regarding claim **25**, Sindhu discloses method (fig. 18) for sending a frame (packet cell) from a source (fig. 2B, #150, input multiport) to selected destinations of a plurality of destinations in a router (fig. 2B, #150-n, output multiports), said method comprising:

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- means for examining said frame (packet cell) to determine a destination identifier (key destination information) for said frame (col. 6, lines 12-17);
- using said destination identifier (key information) as an index, means for accessing a data structure comprising a mask (inherent, fig. 14, #1402) for said plurality of destinations (col. 6, lines 18-21, col. 17, lines 5-15, lines 23-24); and
- means for concurrently transferring at least one portion of said frame (packet cell) from said source to said selected destinations based on said mask (col. 6, lines 21-26, col. 17, lines 5-10)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim **23** is rejected under 35 U.S.C. 103(a) as being unpatentable over Sindhu in view of Sakamoto et al. (US Patent 6,836,479), hereafter referred to as Sakamoto.

Sindhu teaches all the limitations of claim 22 as set forth above. Sindhu does not explicitly teach transferring frames to the output ports happens in parallel. Nonetheless, this feature would have been an obvious modification to the system disclosed by Sindhu as evidenced by Sakamoto.

In analogous art, Sakamoto discloses a system for multicasting a frame in a router having a plurality of input ports (fig. 17, #102, 3) and a plurality of output ports (fig. 17, #103, 4), comprising: a first crossbar switch (fig. 21, #121, cell switch input buffer) for transferring said frame from an input port of said plurality of input ports to a shared memory; a frame pointer (col. 5, lines 30-35) for referencing said frame stored in said shared memory ("container", col. 3, lines 2-11, col. 8, lines 51-54) ; a second crossbar switch (fig. 21, #122, cell switch output buffer) for transferring said frame using said frame pointer to a plurality of selected output ports of said plurality of output ports; and a control unit (fig. 1, #60-1, col. 5, lines 6-10) for selecting said plurality of selected output ports using a multicast data structure having predetermined multicast routes (col. 4, lines 41-54). Sakamoto further discloses:

- transferring said frame using said frame pointer to a plurality of selected output ports happens in parallel (col. 6, lines 29-33)

Given this feature, at the time of the invention, one of ordinary skill in the art would have readily recognized the advantages and desirability of combining the teachings of Sindhu's system with Sakamoto's system where transferring of frames to the output ports happens in parallel.

The motivation for doing so would be to allow frames to be transmitted to more than one output port at a time, increasing throughput (see Sakamoto, col. 6, lines 20-22).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Ferguson et al. (US Patent 5,909,440) relates to a routing system, method, and apparatus for routing packets through a data switch.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Avalon Blenman whose telephone number is (571) 272-5864. The examiner can normally be reached on Mon-Fri, 7:00 AM - 4:30 PM (even date Mons. off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on (571) 272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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